Pamela F. Faggert
Vice President and Chief Environmental Officer

5000 Dominion Boulevard, Glen Allen, VA 23060
Phone: 804-273-3467

Dominion℠

CERTIFIED MAIL
Return Receipt Requested

February 24, 2004

Arthur J. Rocque, Jr.
Commissioner
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106

DJ# 90-5-2-1-07122

RE: Consent Decree: U.S. v. Virginia Electric and Power Company, No. 03-CV-517A
Mitigation Project Plan Approval, Appendix C Section IV.

Dear Commissioner Rocque:

Pursuant to the requirements of Appendix C Section IV of the Consent Decree and Dominion's draft proposed mitigation project implementation plan circulated to DOJ, Dominion has reviewed the Mitigation Project Plan (see attached) proposed by the Connecticut Department of Environmental Protection (DEP). The Plan proposes to use $1,100,000 in Mitigation Project funds to conduct two retrofit projects in the cities of Bridgeport and Hartford. As proposed, the DEP will use the funding to implement the purchase of approximately 148 diesel particulate filters (DPFs) and to pay for the cost differential for the use of ultra-low sulfur diesel fuel (ULSD). The funding of these projects will allow the DEP to continue to implement its state-wide Clean School Bus Program. The DEP will also provide interim progress reports and a final report on its implementation of the projects.

The DEP through the Clean School Bus Program, already in place in Connecticut, has taken a multi-faceted approach to reducing diesel emissions from school buses. The DEP has demonstrated experience in implementing programs to reduce diesel emissions. Based on its review, Dominion concludes that this Plan is complete and therefore is approved. The funding level for this effort, consistent with the requirements of the Consent Decree, is $1,100,000.

Within 30 days of the date of this correspondence, Dominion will provide the $1,100,000 payment consistent with the payment instructions (payment to be made directly to the Treasurer, State of Connecticut, earmarked for the state's "Statewide SEP Clean School Bus Program") contained in the Plan.

Dominion certifies that, based on representations from the Plan partner, no person is required by any law, other than the Consent Decree, to perform the project described in the proposed Plan.

Copies of this correspondence are being provided to all Parties to the Consent Decree, consistent with the requirements of Paragraph 196 of the Consent Decree.

For questions concerning this information, please contact Steve Shaw at 804-273-3024.

Very truly yours,

Pamela F. Faggert

Pamela F. Faggert

Attachment

cc:
Plaintiff copies:
CERTIFIED MAIL
Return Receipt Requested (all Plaintiffs only)

Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
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Chief
Environmental Enforcement Section
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044-7611

Regional Administrator
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19106

Director
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629 East Main Street
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Director, Division of Air Quality
West Virginia Department of Environmental Protection
7012 MacCorkle Avenue SE
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P.O. Box 422
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Assistant Attorney General
Office of the Attorney General
55 Elm Street
Hartford, CT 06106

Tracy R. Babbidge
Assistant Director
Air Planning & Standards Division
CTDEP
79 Elm Street
Hartford CT 06106-5137

Attachment

Connecticut Plan

FEB 1 2004 EPA

STATE OF CONNECTICUT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

79 ELM STREET HARTFORD, CONNECTICUT 06106

PHONE: (860) 424-3001

Arthur J. Rocque, Jr.
Commissioner

February 11, 2004

Pamela F. Faggert
Vice President & Chief Environmental Officer
Dominion
5000 Dominion Boulevard
Glen Allen, VA 23060

Dear Ms. Faggert:

I am pleased to provide a copy of Connecticut's final plan for the use of the $1.1 million from the VEPCO Consent Decree. The Connecticut Department of Environmental Protection proposes to utilize the $1.1 million in Supplemental Environmental Project (SEP) money to fund two school bus retrofit projects in the cities of Bridgeport and Hartford. The project as described is a robust, comprehensive approach to a notable environmental health issue generally beyond the scope of core environmental regulatory programs.

Specifically, funding will be utilized to purchase approximately 148 diesel particulate filters (DPFs) and to pay for the cost differential for the use of ultra-low sulfur diesel fuel (ULSD). These costs are currently estimated at $888,000 for the DPFs and $150,000 to cover the cost differential for the ULSD for 308 school buses for one year. The remaining funds will be utilized to cover project management costs and contingencies. The project plan provides that if the selected buses cannot obtain the necessary operating temperatures for the engine manufacturer to honor warranties, or if the project team identifies another EPA verified technology with comparable emission reduction benefits, that technology could also be selected.

Both the Bridgeport and Hartford school bus fleets are privately owned and operated by Laidlaw Transit Inc. Discussions have been ongoing with project teams in each city. We are eager to move forward with these projects as soon as possible. If you have any questions, please contact Tracy Babbidge of my staff at (860) 424-3382.

Sincerely,

Arthur J. Rocque, Jr.
Commissioner

AJR:TB:tb

Enclosure

Connecticut Department of Environmental Protection
VEPCO Diesel Retrofit Plan

Applicant: Connecticut Department of Environmental Protection (CTDEP)

Project Title: Connecticut Clean School Bus Program-Bridgeport and Hartford

Brief Summary: CTDEP proposes to utilize the $1.1 million in Supplemental Environmental Project (SEP) money to fund two retrofit projects in the cities of Bridgeport and Hartford. Funding will be utilized to purchase approximately 148 diesel particulate filters (DPFs) and to pay for the cost differential for the use of ultra-low sulfur diesel fuel (ULSD). These costs are currently estimated at $888,000 for the DPFs and $150,000 to cover the cost differential for the ULSD for one year. The remaining funds will be utilized to cover project management costs. If the selected buses cannot obtain the necessary operating temperatures for the engine manufacturer to honor warranties, another EPA verified technology would be selected. CTDEP will also consider other EPA verified retrofit devices that can achieve emission reductions comparable to DPFs. Both the Bridgeport and Hartford school bus fleets are privately owned and operated by Laidlaw Transit Inc. The performance of the project is not required by any law and is solely a requirement of the Consent Decree. CTDEP has the legal authority to receive funding and to implement this project under the Commissioner's general authority found in Sections 22a-5 and 22a-171.

Air Quality Benefits:

Exhaust from diesel engines is a significant contributor to air pollution and has been classified as a probable human carcinogen by the Environmental Protection Agency. Diesel exhaust contains nitrogen oxides, particulate matter, and 40 other known carcinogens including benzene, 1-3 butadiene, formaldehyde, and acrolein.

In Connecticut nearly 387,000 children ride 6,100 school buses each day. Of those 6,100 buses, 99% are diesel fueled. The amount of time a child spends on the bus every day varies from 20 minutes to several hours per day. Collectively, Connecticut children spend 50 million hours on buses each year; therefore, Connecticut has made the reduction of diesel emissions in school buses a priority. The Clean School Bus Program, already in place in Connecticut, takes a multi-faceted approach to reducing diesel emissions from school buses. Connecticut's strategies aimed at reducing diesel emissions include the following:

- Anti-Idling Policy

The State of Connecticut has a regulation prohibiting the idling of non-exempt motor vehicles for more than three minutes when outside temperatures are above 20 degrees Fahrenheit. Although this anti-idling regulation has been in place since 1983, the DEP recognized the need to focus on idling school buses in order to raise awareness

of the health risks associated with diesel exhaust and educate school bus companies about what they can do to minimize those risks for themselves and school children.

In January 2002 the DEP, in partnership with the Connecticut School Transportation Association (COSTA), signed an anti-idling policy. The voluntary policy signed by both organizations included notice to all transportation carriers and school bus drivers to eliminate any unnecessary idling. The policy directed school bus drivers to shut off their bus engines immediately upon reaching their destinations; and not to idle while waiting for passengers except under certain conditions. CT DEP in partnership with COSTA conducts an annual training for school bus drivers as part of an ongoing effort to increase awareness on anti-idling.

In February 2002, the Connecticut General Assembly passed a statute specifically prohibiting the idling of school buses for longer than 3 minutes unless it meets the exempted conditions. An example of an exempted condition is when the outdoor temperature is below 20 degrees Fahrenheit. Through this project CTDEP will work with the Bridgeport and Hartford project teams to address the anti-idling policy and work with Laidlaw to ensure the policy is adhered to.

- Education and Outreach

CT DEP has also utilized diesel reduction efforts as a springboard for educational efforts inside Connecticut's classrooms. The CT DEP has contracted with the Steven's Institute from the Center for Improved Engineering and Science Education to develop an air quality curriculum to disseminate and discuss air quality information within the classroom. This curriculum was developed in April 2003 and is being field-tested in 6th, 7th, and 8th grade classrooms in Norwich Public Schools. Additional funding has been secured to pursue this project in the New Haven and Bridgeport school districts. CTDEP will work to coordinate the school bus retrofit effort with the implementation of the air quality curriculum especially within the Bridgeport school district. Education and outreach efforts will be pursued with funding independent of this SEP.

Upon completion and contingent upon future funding, CTDEP plans to facilitate teacher training of the curriculum content and encourage school districts like Hartford, to adopt the unit as part into their science curriculum. This is particularly relevant in districts that have undergone a partial or complete school bus retrofit project and provides the opportunity to bring information about diesel exhaust into the classroom.

Project Benefits:

Clean School Bus Retrofit Projects conducted in the State of Connecticut are aimed at reducing the particulate matter, hydrocarbons, and carbon monoxide emitted from diesel school buses. The installation of emission control devices such as diesel particulate filters or diesel oxidation catalysts, together with the use of low sulfur diesel fuel, will reduce the exhaust emissions from school buses. This reduction in diesel exhaust is

expected to reduce bus occupant diesel exposure thereby reducing the adverse health risk related to such exposure.

Experience-Norwich Public Schools

Beginning in January 2002, the Connecticut DEP partnered with the City of Norwich, the Norwich Public Schools, NESCAUM, First Student Inc., other state and local agencies, and the Mohegan Tribal Nation to develop and implement a technology demonstration program to reduce diesel exhaust from the fleet of school buses servicing the Norwich school system. This past spring, the CT DEP announced the completion of this demonstration project, which involved retrofitting 41 of the school buses servicing the Norwich Public Schools with either diesel particulate filters or diesel oxidation catalysts. In July 2002 all buses began utilizing ultra-low sulfur diesel (ULSD) fuel and the fleet has run on ULSD fuel for one year. This project represents the first successful, full fleet school bus retrofit project in the Northeast and serves as a blueprint for similar projects statewide. The Norwich Project was funded through a supplemental environmental project which committed $250,000 to engineer and install retrofits, supply one year of ULSD fuel, and conduct follow up exposure testing.

As part of this project, tailpipe and in-cabin emission testing of buses has been conducted to better evaluate the performance of the control equipment and their impacts on air quality within the buses. The table below provides an estimate of emission reductions from the Norwich, Bridgeport and Hartford retrofit projects.

Fleet	Number of Vehicles	Number of Years	Emission Reduction (tons)		
			PM	CO	VOC
Norwich	**41**	**1**	**0.07**	**1.10**	**0.32**
Bridgeport	**74 est.**	**1**	**0.13**	**2.2**	**0.63**
Hartford	**74 est.**	**1**	**0.13**	**2.1**	**0.63**

DEP and NESCAUM had designed and implemented the Norwich Project and its testing program to serve as a model to ensure transferability to other school districts statewide. The Norwich model will be followed for both Bridgeport and Hartford projects. The data will be used to learn more about the cost/health benefits of retrofit equipment and will yield valuable information about equipment performance as other projects move forward.

Norwich Project Partners

Johnson Matthey Diesel Emissions Control Systems
First Student, Inc.
EPA New England- Region 1
Cummins Engine Company
Department of Environmental Protection
Norwich Public Schools
CT Department of Public Health
Uncas Health District
Cummins Metropower
CT Department of Motor Vehicles
Norwich Community Development Center
NESCAUM

Project Selection Process-Air Quality and Geographic Considerations

Step 1: CTDEP has utilized statewide air-monitoring data to prioritize school districts based on their location in various air quality areas of the State. While the emission reduction goals from diesel school bus retrofit projects are focused on reducing the localized exposure risks of school children being transported by school buses, the health of children may already be at risk in areas that have elevated levels of particulate matter and ozone pollution. In certain areas of the State, the existing regional air quality can present respiratory and other health problems for children. Priority has been given to districts that are located in areas that face the most serious regional air pollution concerns and would benefit from diesel reduction strategies.

Attainment Status
Districts that are located in areas of non-attainment for criteria air pollutants, particularly ozone and particulate matter, and that host the greatest concentration of sources emitting criteria air pollutants have been given high priority consideration for school bus retrofit projects. Information on Connecticut school districts and the attainment status for particulate matter and ozone for the area in which they are located is presented in Table 1.

Particulate Monitoring Data
Air-monitoring data collected at various monitoring sites across the state can be used to assess the level of particulate matter pollution in a given district. The air monitors measure concentrations of PM 2.5 (particulate matter less than 2.5 microns in diameter). The Department has PM 2.5 monitors located in the following districts: Bridgeport (2 locations), Danbury, East Hartford, Hamden, Hartford, New Haven (2 locations), Norwalk, Norwich, Stamford, Waterbury, and Westport. A three-year average of data from these monitors is presented in Table 1. Priority may be given to districts based on the concentration of PM 2.5 measured in the area they are located.

Step 2: Identify and target urban and environmental justice communities within the air quality priority areas identified in Step 1. CTDEP identified environmental justice communities by using the list of distressed cities created by the Department's Environmental Equity Program. In addition, information gathered by the Connecticut Coalition for Environmental Justice shows the location of the greatest concentration of minority populations and air polluting sources across the state. Also, the Connecticut Department of Education uses Educational Reference Groups (ERGs) to categorize Connecticut school districts based on a set of demographic variables. These ERG categories (A-I) group districts that share common socioeconomic and educational characteristics. For example, the ERG I districts are those classified by the Department of Education as "high need urban areas". Priority has been given to communities that are identified to be environmental justice communities or are of a particular ERG classification. The ERG of each listed school district is identified in Table 1.

Step 3: Analyze the school bus fleet to determine the potential cost of a partial or complete retrofit project and the overall suitability for retrofitting buses based on the age of the vehicle, the engine type, and the available technology. As a general rule, buses should stay in the district for at least three (3) years after they are retrofitted but preferably for five (5) years. Priority has been given to bus fleets where a comprehensive fleet retrofit can be accomplished and the engine type and make are suitable for achieving maximum emissions reductions through control technology. Priority has also been given to districts where children are being transported longer distances resulting in increased diesel exhaust exposure time for students. A full fleet analysis is an ongoing effort and will require additional detailed information from the bus owner and operator.

Step 4: Establish a project team at the local level that is committed to the long-term success of the project. Project team participants should be willing to properly maintain the equipment, ensure that the buses remain in the district for the preferred five (5) years, elicit public support and community understanding of the project, and if necessary, maximize the emission reduction benefits by committing to use low-sulfur diesel fuel in future years.

A successful project team should include representatives of the superintendent's office, the local health director, the board of education, the mayor or town manager, the bus company, the parent-teacher organization, and the director of school transportation. Potential school bus retrofit projects that are identified as suitable based on the criteria of Steps 1-3 above may not be selected for a project if a dedicated project team cannot be established and maintained. Priority has been given to a district whose project team members are in full support of the project and committed to its success. All of the school districts listed in Table 1 have received an outreach letter from the Commissioner of DEP to identify the opportunity to pursue a retrofit project in their community. In addition, CTDEP participated in several seminars and workshops to discuss school bus retrofit projects and to invite local participation.

Table 1. Sample list of school districts considered for retrofit projects

District	Ozone attainment area	Prelim. Particulate attainment designation (2.5)	3-year particulate concentration (ug/m3)	ERG	Urban (U) Suburban (S) Rural (R)	Bus Fleet Information attached Yes/No
Ansonia	serious	attainment	N/A	H	U	No
Bridgeport	severe	attainment	13.7, 12.8	I	U	YES
Bristol Sent letter 7/3	serious	attainment	N/A	H	U	No
Brooklyn	serious	attainment	N/A	E	R	No
Canterbury	serious	attainment	N/A	E	R	No
Danbury Sent letter 7/3	severe	attainment	12.9	H	U	No
Derby	serious	attainment	N/A	H	U	No

District	Ozone attainment area	Prelim. Particulate attainment designation (2.5)	3-year particulate concentration (ug/m3)	ERG	Urban (U) Suburban (S) Rural (R)	Bus Fleet Information attached Yes/No
Sent letter 7/3						
East Hartford	serious	attainment	11.6	H	U	No
East Haven Sent letter 7/3	serious	attainment	N/A	G	U	No
East Hartford Sent letter 7/3	serious	attainment	N/A	H	U	No
Griswold	serious	attainment	N/A	G	R	No
Hamden	serious	attainment	11.7	D	S	No
Hartford	serious	attainment	12.6	I	U	YES
Killingly	serious	attainment	N/A	H	R	No
Lisbon	serious	attainment	N/A	E	R	No
Meriden Sent letter 7/3	serious	attainment	N/A	H	U	No
Montville	serious	attainment	N/A	F	R	No
New Britain Sent letter 7/3	serious	attainment	N/A	I	U	No
New Hartford	serious	attainment	N/A	C	R	No
New Haven	serious	non attainment	16.6,13.9	I	U	YES
New London Sent letter 7/3	serious	attainment	N/A	I	U	No
Norwalk Sent letter 7/3	severe	attainment	13.0	H	U	No
Norwich Already implemented	serious	attainment	11.8	H	U	YES
Plainfield	serious	attainment	N/A	G	S	No
Plainville	serious	attainment	N/A	G	S	No
Plymouth	serious	attainment	N/A	G	R	No
Putnam	serious	attainment	N/A	H	R	No
Sprague	serious	attainment	N/A	G	R	No
Sterling	serious	attainment	N/A	G	R	YES
Stafford	serious	attainment	N/A	G	R	No
Stamford Sent letter 7/3	severe	attainment	13.1	H	U	No
Stratford	severe	attainment	N/A	F	S	No
Thompson	serious	attainment	N/A	G	R	YES
Voluntown	serious	attainment	N/A	G	R	No

District	Ozone attainment area	Prelim. Particulate attainment designation (2.5)	3-year particulate concentration (ug/m3)	ERG	Urban (U) Suburban (S) Rural (R)	Bus Fleet Information attached Yes/No
Waterbury Sent letter 7/3	serious	attainment	13.7	I	U	No
Watertown	serious	attainment	N/A	D	S	No
West Haven Sent letter 7/3	serious	attainment	N/A	H	U	No
Westport	severe	attainment	12.4	A	S	No
Winchester	serious	attainment	N/A	G	R	No
Windham	serious	attainment	N/A	I	R	No
Windsor Locks	serious	attainment	N/A	F	S	No

Proposed Projects:

CT DEP proposes to utilize and leverage funding from the Mitigation Project portion of the VEPCO Consent Decree to continue to implement its state-wide Clean School Bus plan by initiating retrofit projects in the cities of Bridgeport and Hartford. CT DEP has already met with representatives of each district and has organized project teams. Since the fleets in each of these districts are sizeable, a phased approach to implementation is necessary.

Phase I of these projects involves analyzing each district's bus fleet, and evaluating emission control devices (ECDs) that are both suitable for the buses and will achieve the maximum environmental benefit. Once the ECDs are identified, Phase I will continue with ECD engineering and installation on a portion of each bus fleet, focusing first on the larger and newer Type I buses. A significant portion of this work is currently underway. Work will however, need to continue in this area, as data collection and ECD identification are still ongoing and are critical steps in the ECD identification process.

Phase II of the projects will involve retrofitting a second portion of each bus fleet including more Type I buses and, if funding permits, Type II buses. In the case of the bus fleet servicing Hartford, the number of Type II buses used primarily for special education services outnumber the Type I buses by a factor of 50%.

~Bridgeport Project~

Environmental Justice, Asthma
and Air Pollution in Bridgeport

For the 2004/2005 school year approximately 13,000 Bridgeport students will be transported on buses to various schools within and outside of the school district. The average length of time a Bridgeport student spends on a bus each day is 40-45 minutes. The Bridgeport school district is categorized in the ERG I and is considered a "high need

urban area". It too is identified as an area that is the focus of the Connecticut DEP's Environmental Equity Program. In addition, according to data obtained from the Connecticut Coalition for Environmental Justice[1], the City of Bridgeport is a district with a high minority population and a large quantity of air polluting sources.

According to the Children's Health Council, 13% of Bridgeport children under the age of 21 who were enrolled in the HUSKY (a subsidized health insurance program to help Connecticut families obtain and afford coverage for their children) from October 2000 to September 2001 were treated for asthma related illnesses. This is up from 10% during the previous year. In addition, Fairfield County has the highest number of ozone exceedance days in the State. These factors make the City of Bridgeport a focus for air pollution reduction strategies. To date, representatives of the CTDEP have met with the project partners (listed below) to develop an implementation team and plan the initial stages of a diesel school bus retrofit project. Letters of support from the Bridgeport Project partners are attached to this work plan.

Partners:
CT DEP
NESCAUM
Bridgeport Board of Education, Office of the Superintendent
Bridgeport Child Advocacy Coalition
City of Bridgeport, Mayor's Office
Laidlaw Education Services
Environment Northeast
Connecticut Coalition for Environmental Justice

Fleet Information
Total Number of Buses: 208
Annual Fuel Consumption: approx. 395,000 gallons
Annual Hours of Operation: 175,000-200,000
Annual Miles Traveled: 10,500 per bus/year
Min. time retrofitted buses will remain in district: 5 years

Type	Vintage	Number	Engine Manufacturer	Engine Type
1	2003	20	International-Navistar	T444E
	2002	6	International-Navistar	T444E
	2001	20	International-Navistar	T444E
	1999	4	International-Navistar	T444E
	1998	19	International-Navistar	T444E
	1997	20	International-Navistar	T444E
	1996	39	International-Navistar	T444E
	1995	13	International-Navistar	T444E
	1993	1	Genesis	DTA369

[1] Connecticut Coalition for Environmental Justice website map titled "2000 Census Tracts Percent Minority and Plants Emitting Criteria Air Pollutants", retrieved 4/28/03 from World Wide Web at http://www.environmental-justice.org/ej_maps/airpoll_minority.html.

Type	Vintage	Number	Engine Manufacturer	Engine Type
	1990	1	International	7.3L IHC
2	2003	3	Ford	6.5L
	2002	3	Ford/ Chevy	E 351-7.3/6.5L
	2001	1	Chevy	6.5L
	2000	11	Ford/Chevy	6.5L
	1999	1	Ford	7.3L
	1998	15	Genesis/Ford	DT 466/7.3L
	1997	20	Ford/Chevy	7.3L/6.5L
	1996	6	Ford	7.3L
	1995	2	Ford	7.3L
	1994	3	Ford	7.3L

As part of the project, school buses within the fleet will be evaluated for suitability for retrofits.

Air Quality Status

PM10- Non-attainment CO-Maintenance
PM 2.5- Not yet classified Ozone-Severe Non-attainment

~Hartford Project~

Environmental Justice, Asthma and Air Pollution in Hartford. For the 2003-2004 school year, Hartford anticipates that 5000 of its students will be transported to district schools on school buses. A majority of the Hartford fleet (150 buses) consists of Type 2 buses that primarily service special education students.

The Hartford school district is also categorized as an ERG I group identified by the Department of Education as a "high need urban area". In addition, according to data obtained from the Connecticut Coalition for Environmental Justice[2], Hartford is a district with a high minority population and air polluting sources. Children in Hartford are three times more likely to be hospitalized for asthma related health issues than other children in the state. Asthma accounts for 18% of the cause for emergency room visits among children ages 0-14, the highest rate of such visits among the major urban areas in the Connecticut[3]. In Hartford, rates of asthma are also highest among African Americans (30%), and Hispanics (50%)[4]. To date, representatives of the Connecticut DEP have met with the project partners (listed below) to develop a

[2] Connecticut Coalition for Environmental Justice website map titled "2000 Census Tracts Percent Minority and Plants Emitting Criteria Air Pollutants", retrieved 4/28/03 from World Wide Web at http://www.environmental-justice.org/ej_maps/airpoll_minority.html.
[3]Information retrieved from asthma fact sheet produced by Hartford Health Department Asthma Call to Action Task Force retrieved from http://www.buac.org/minutes/11_8_01_minutesaddendum.pdf
[4] Information retrieved from asthma fact sheet produced by Hartford Health Department Asthma Call to Action Task Force retrieved from http://www.buac.org/minutes/11_8_01_minutesaddendum.pdf

project team and implementation plan to outline the initial stages of the project. Letters of support from the Hartford Project partners are attached to this work plan.

Partners:
CT DEP
NESCAUM
Hartford Board of Education, Office of the Superintendent
Laidlaw Education Services
Connecticut Coalition of Environmental Justice
Environment Northeast

Fleet Information
Total Estimated Number of Buses: 172*
Annual Fuel Consumption: approx. 266,000 gallons
Annual Hours of Operation: 900 per bus; 147,600 for fleet
Annual Miles Traveled: 55 per bus/day and 9900 per bus/year
Min. time retrofitted buses will remain in district: 5 years

Type	Vintage	Number	Engine Manufacturer	Engine Type
1	1997	20*	International- Navistar	T444E
1	1996	40*	International-Navistar	T444E
2 ↓	2003	7	Various- Chevy, Ford, GMC	
	2001	16		
	2000	27		
	1999	7		
	1998	11		
	1997	11		
	1996	23		
	1995	5		
	1994	5		

* The 1997 and 1996 Type I buses are replacing existing fleet of 1991/1992 Type I buses and will be new to the district this year. The exact breakdown of how many vehicles of each vintage will be part of the 2003/2004 fleet needs to be determined. As part of the project, school buses within the fleet will be evaluated for suitability for retrofits.

Air Quality Attainment Status

PM10-Non-attainment
PM 2.5- Not yet designated
CO-Maintenance
Ozone-Serious Non-attainment

Timeline- Phase 1

Step	Action	Estimated date
1-Planning	Coordinate with the project partners, including NESCAUM, the bus company, school district, and City to survey each fleet of diesel vehicles and identify bus VINs, exhaust configurations, body style and chassis style.	Within 2 months of funding availability.
2-Data Collection	Collect operational exhaust temperature and duty cycle data. Data logging of a series of buses to characterize the fleet. To be completed by contractor and ECD supplier.	Within 2 months of funding availability
3-ECD evaluation	Evaluate emission control device (ECD) technologies (i.e. particulate filter vs. oxidation catalyst) and alternative fuels for selection and implementation: To be completed by Board's of Education, CT DEP, contractor, and bus companies (First Student and Laidlaw)	Within 2 months of funding availability.
4- ECD Identification and selection	Identify and select emission control device (ECD) technologies and alternative fuels: To be completed by board's of education, CT DEP, contractor, and bus companies (First Student and Laidlaw).	Within 3 months of funding availability
5- Engineering Assessment	Complete engineering assessment of the retrofit technology: To be completed by ECD supplier and contractor.	Within 6 months of funding availability
6- ECD Engineering	Perform hardware engineering, design, and fabrication for the retrofits and on-vehicle malfunction warning lights: Installation of retrofits will be performed on-site at the bus company facilities. Backpressure will be monitored using warning devices and actual pressure gauges that will allow the recording of in-use data in drivers' logs, or real time data loggers that can continuously record multiple parameters simultaneously. To be completed by school bus company operation and maintenance staff, ECD technology vendor, and contractor.	Within 8 months of funding availability
7- ULSD Fuel Supply Logistics	Schedule delivery of ULSD fuel to the fleet location one month prior to installation of ECDs. Subsidize the incremental cost of the ULSD fuel vs. regular diesel fuel. Track fuel quality and fuel usage.	Within 9 months of project funding.

Step	Action	Estimated date
8- ECD Installation	Install the ECDs on Phase I portion of the fleet: The project partners including the CT DEP, the contractor and the technology vendor will work with the engine manufactures and bus companies to install, test, and maintain the ECD equipment. To be completed by school bus company operation and maintenance staff, ECD technology vendor, and contractor.	Within 10 months of funding availability
9- Long-Term Maintenance	The contractor and/or its technology vendor will train the school bus owners and operators in the proper maintenance and routine repair of the ECD and retrofitted exhaust system.	During ECD Engineering and Installation- Steps 6 and 7
10- Project support	Conduct outreach and education to support student and community understanding of air pollution, diesel and particulate matter emissions and the retrofit project. To be conducted by the CT DEP Kellogg Environmental Center or other organization identified by the project team.	This task will be pursued only if additional funding becomes available from an independent source.

Step 5: Project Sustainability

Project Training and Outreach

While the CT DEP has already conducted a technology demonstration project in Norwich, the Bridgeport and Hartford projects will be CT DEP's first attempt at conducting a retrofit project in a large urban district. The CT DEP will use its experience in the Norwich Project, as described below, to retrofit a substantial portion of the much larger 208-bus fleet in Bridgeport. Accordingly, this project will be more complex and will require phases of implementation.

This will also be the first retrofit project conducted with buses owned and operated by Laidlaw Educational Services. CT DEP's contractor and the ECD supplier will work with the Laidlaw drivers and maintenance staff to provide comprehensive training on the ECD operation and maintenance so that the ECDs will function properly and will not interfere with the operation of the buses. Training private school bus operators in the installation of emission control devices is an important way to ensure sustainability of school bus retrofit projects. This is true for several reasons. First, school bus companies operate buses either statewide, on a regional basis, or nationwide. Thus, training and familiarity gained at one depot can be transferred to other depots within the school bus operator company. For example, Laidlaw Educational Services operates buses in many states and in many cities in Connecticut, including the cities of Hartford, Waterbury, Stamford and Norwalk. Laidlaw will use the institutional experience and learning provided by the pilot project in other areas. The commitment to training and conducting the installations has been discussed with Laidlaw and they have agreed to provide this in-kind support.

Second, familiarity with ECDs and their installation provides confidence in the retrofits for other school bus operators in the vicinity of a pilot. School bus operators appear to talk frequently to each other about the operation of the buses. In order to promote retrofit projects with other bus companies and other districts, it is important that the bus companies have positive experiences and are confident that the ECDs and fuel will not harm engines or operations. Competition among school bus operators is also spurring interest in retrofits. Many of the school bus companies in Connecticut are now seriously looking at retrofits because they perceive that First Student has an advantage in the arena of school bus retrofits after having done the pilot at Norwich. Laidlaw has agreed to cover routine maintenance costs for a period not to exceed four (4) years, providing those costs are reasonable in comparison to the initial annual cost experienced.

If independent funding can be secured to fund an education and outreach component, activities for the Bridgeport Project would focus on building community understanding and support for the project. CT DEP will work with the Bridgeport Child Advocacy Coalition and the Bridgeport Public Schools to raise awareness about the health concerns associated with diesel exhaust as well as to educate the community and the Bridgeport students about the retrofit project. The results of this project will also be shared with various diesel reduction stakeholder groups throughout the State of Connecticut. The CT DEP has recently joined efforts with a Connecticut Diesel Action Workgroup, which includes members from Environment Northeast, Connecticut Coalition of Environmental Justice, Connecticut Department of Transportation, City of New Haven, Connecticut Fund for the Environment and Environment Human Health Inc., to brainstorm and share ideas about diesel reduction strategies across Connecticut. The CT DEP also hopes to present the Bridgeport Project as a case study for other large urban districts at Connecticut's annual Healthy School Conference, held each year in the spring.

Connecticut DEP and its contractor will also provide a final report on the results of the retrofit project detailing technical and implementation issues. The report will include information on issues such as: matching verified technologies to different engine types, installation experience, retrofitted engine performance, operator acceptance of ECDs, maintenance, estimated emissions reductions, addressing school bus operator concerns, and other elements important for the replication of retrofit projects in other school districts.

6. Financial Participation

CT DEP will facilitate project implementation between the project partners and the contractor obtained by CT DEP. After they have been trained to properly install the ECDs, the Laidlaw Educational Services will donate its maintenance staff to assist the ECD supplier with installing the ECDs for the bus fleet. Laidlaw will contribute up to $7000 worth of maintenance staff time for the purposes of installing the ECDs.

Budget

Project cost estimates reflect the goals of the project, which is to select a retrofit scenario that achieves the highest emission reductions. Therefore, estimates are based on the cost

of retrofitting each bus with a diesel particulate filter and running the entire fleet on ultra low sulfur diesel fuel at an estimated differential cost of 20 cents per gallon. Also, if

Project	Cost of Equipment for	Total Estim. Cost of Fuel Differential (if ULSD Fuel used)	Estimated Total Cost of Project Management	Estimated Total Direct Costs
Hartford	74 Buses at max. $6,000/bus **$444,000**	For 1 year, 300,000 gallons @ 20 cents **$60,000**	Contractual at **$31,000**	**$535,000**
Bridgeport	74 Buses at max. $6,000/bus **$444,000**	For 1 year, 450,000 gallons @ 20 cents **$90,000**	Contractual at **$31,000**	**$ 565,000**
Project Totals	**$888,000**	**$150,000**	**$62,000**	***$1,100,000***

ULSD fuel is used, the project partners will work to obtain a lower price for the cost of the fuel. If actual equipment and fuel costs are less than project estimates, the remaining money will be used to retrofit more vehicles in the fleet, and to offset any remaining fuel price differential in subsequent years, if needed. Similarly, if project costs are higher than anticipated, CTDEP will evaluate the cost-benefit of available EPA verified technologies and may choose a lower cost option. The overall goal of the project will be to maximize the number of retrofits and provide the greatest environmental and public health benefit to the community.

Both school districts have the necessary fueling infrastructure and are centrally fueled fleets and therefore additional infrastructure requirements are not anticipated at this time. VEPCO money utilized through this agreement will be used to cover the cost of the retrofit equipment, supplies (differential cost for fuel for one year), and the estimated contractual and project management costs and any cost overruns in these identified items.

Reporting

CTDEP and its contractor will provide update reports on project progress (including project accomplishments, and an accounting of expenditures by August 31st and January 31st of each year after "entry" until the Project has been completed. CTDEP will provide a final report on the results of the retrofit projects detailing technical and implementation issues. The report could include information on issues such as: matching verified technologies to different engine types, installation experience, retrofitted engine performance, operator acceptance of ECDs, maintenance, estimated emissions reductions,

addressing school bus operator concerns, and other elements. Upon completion of the project, a final report including a review of project accomplishments/benefits, and project accounting will be issued within 30 days of project completion. If required by EPA or DOJ, CTDEP will submit the semi-annual progress reports and the end of project report per guidance from Dominion.

Payments

The entire payment of $1.1 million after plan approval shall be made by certified check payable to "Treasurer, State of Connecticut" notation thereon "Statewide SEP Clean School Bus Program".

The payment shall be mailed to:

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